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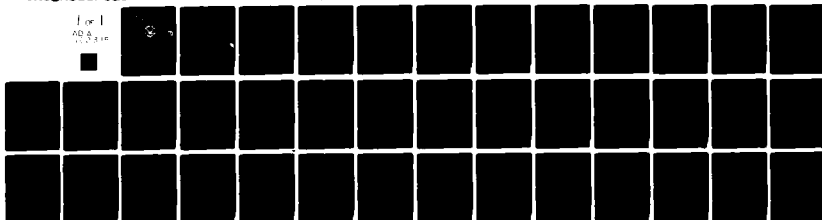
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## THESIS

ANALYSIS OF THE EFFECTIVENESS OF RTC CREDO  
TO COUNTER FIRST-TERM ENLISTED ATTRITION

by

10 William J. Keating, Jr.

11 Jun 1981

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Thesis Advisor:

Richard E. Elster

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>A statistical analysis was conducted to assess the effectiveness of the experimental program, RTC CREDO, to counter first-term enlisted attrition in the Navy.<br><br>The results of this study demonstrate that the RTC CREDO experiment was successful in reducing first term enlisted attrition by 1.22 percent after 14 months of service when compared to a |                       |                                                                    |

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control group.

This difference was not statistically significant at the .05 level. The reduction in attrition gained by the RTC CREDO experiment appears at this time to be inefficient with respect to the cost of the program. It is recommended that the RTC CREDO program in its present form and with its present contribution toward reducing first-term attrition be discontinued, unless the difference between control group and CREDO attrition rates increases markedly by the time the cohort finish their first enlistment periods.

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Analysis Of The Effectiveness of RTC CREDO  
To Counter First-Term Enlisted Attrition

by

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Lieutenant Commander, United States Navy  
B.A., Villanova University, 1969

Submitted in partial fulfillment of the  
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

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## ABSTRACT

A statistical analysis was conducted to assess the effectiveness of the experimental program, RTC CREDO, to counter first-term enlisted attrition in the Navy.

The results of this study demonstrate that the RTC CREDO experiment was successful in reducing first-term enlisted attrition by 1.22 percent after 14 months of service when compared to a control group.

This difference was not statistically significant at the .05 level. The reduction in attrition gained by the RTC CREDO experiment appears at this time to be inefficient with respect to the cost of the program. It is recommended that the RTC CREDO program in its present form and with its present contribution toward reducing first-term attrition be discontinued, unless the difference between control group and CREDO attrition rates increases markedly by the time the cohort finish their first enlistment periods.

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## I. INTRODUCTION

### A. PROBLEM

First-term attrition among enlisted members of the U.S. Navy has been a serious problem addressed by high levels within the Department of Defense. The term first-term attrition refers to the loss of enlisted personnel who fail to complete their initial obligated term of service. It has been estimated that in 1976 the cost of first-term attrition was one billion dollars (Defense Manpower Commission, 1976) [1]. In addition to the dollar cost of first-term attrition there is an immeasurable cost of first-term attrition in the form of reduced readiness of fleet units due to vacant billets, administrative costs to process out the early attrites, and additional costs for recruiting effort required to respond to unprogrammed losses.

First-term attrition rates have declined over the last five years (see TABLE I). The largest category of first-term personnel separated early encompasses losses due to a failure to meet minimum behavioral and performance criteria. Lockman (1977) demonstrated that variables such as education, mental ability, age, marital status, and race can be used to predict enlisted attrition [2].

The Navy uses a model developed by Lockman to determine the "quality mix" of service recruits. To a degree, this method of selection has driven down the first-term attrition

rates. However, as shown in Table I, first-term attrition continues to be a significant problem to be solved.

## B. PURPOSE

The purpose of this thesis is to describe the Recruit Training Center Chaplain's Religious Enrichment and Development Operation (RTC CREDO) and to analyze the results of this experimental program to determine if RTC CREDO is effective in countering first-term attrition.

RTC CREDO is an extension of the existing CREDO program, and is intended to offer assistance toward personal growth and spiritual development. The focus of RTC CREDO is on the individual; on his emotional, attitudinal and situational adjustment. There were eleven three-day CREDO workshop sessions conducted between July, 1979 and March, 1980. The format of a typical RTC CREDO workshop session is contained in Appendix A. This thesis will not address the structure and format of the RTC CREDO workshop. It will address the selection criteria for experimental and control groups, the sources from which the subjects were selected, experimental data analysis, and the findings with respect to attrition. A cost benefit-analysis was also conducted to examine whether or not the RTC CREDO program is cost effective.

TABLE I  
NAVY MALE NPS CUMULATIVE PERCENT ATTRITION BY FISCAL YEAR

|            |  | <u>Length of Service (Months)</u> |            |             |              |              |              |              |              |
|------------|--|-----------------------------------|------------|-------------|--------------|--------------|--------------|--------------|--------------|
|            |  | <u>0-3</u>                        | <u>4-6</u> | <u>7-12</u> | <u>13-18</u> | <u>19-24</u> | <u>25-30</u> | <u>31-36</u> | <u>37-48</u> |
| 1973 Total |  | 7.41                              | 9.52       | 15.62       | 21.71        | 26.88        | 30.91        | 34.06        | 36.99        |
| ISC 6-8    |  | 4.70                              | 6.27       | 11.20       | 16.38        | 20.69        | 23.99        | 26.42        | 28.46        |
| 1974 Total |  | 11.22                             | 13.16      | 18.67       | 25.09        | 30.51        | 34.58        | 37.71        | 40.98        |
| ISC 6-8    |  | 7.22                              | 8.72       | 13.35       | 18.95        | 23.61        | 27.01        | 29.54        | 31.82        |
| 1975 Total |  | 9.99                              | 12.41      | 17.65       | 23.64        | 28.93        | 32.76        | 35.25        | 37.73        |
| ISC 6-8    |  | 6.76                              | 9.21       | 13.01       | 18.78        | 23.26        | 26.33        | 28.18        | 29.77        |
| 1976 Total |  | 8.90                              | 11.33      | 16.81       | 22.23        | 26.38        | 29.26        | 31.24        | 33.17        |
| ISC 6-8    |  | 5.63                              | 7.60       | 12.07       | 16.63        | 19.92        | 22.09        | 23.44        | 24.61        |
| 1977 Total |  | 12.37                             | 14.20      | 17.77       | 21.14        | 24.09        | 25.66        | 26.05        | 28.11        |
| ISC 6-8    |  | 8.87                              | 10.20      | 12.82       | 15.33        | 17.58        | 18.75        | 19.05        | 19.78        |
| 1978 Total |  | 10.18                             | 11.45      | 15.12       | 16.44        | 16.82        | 17.48        | 17.77        | ---          |
| ISC 6-8    |  | 9.14                              | 10.11      | 11.60       | 12.88        | 13.18        | 14.45        | 14.87        | ---          |
| 1979 Total |  | 10.48                             | 11.33      | 13.04       | 14.08        | 14.26        | ---          | ---          | ---          |
| ISC 6-8    |  | 8.20                              | 8.83       | 9.96        | 10.64        | 10.75        | ---          | ---          | ---          |

SOURCE: DMDC Cohort File, Current as of Sept. 30, 1980.

NOTE: Total is total attrition for all reasons; ISC 6-8 stands for Interservice Separation Codes representing losses due to failure to meet minimal acceptable behavioral or performance criteria.

## II. EXPERIMENTAL DESIGN

### A. SOURCES OF SELECTION

The focus of the RTC CREDO experiment was on Navy recruits who had completed eight weeks of basic training and were assigned to the Apprentice Training Division (ATD). Selection of the ATD personnel was done by a Senior Chief Petty Officer who reviewed the recruit training records. His selection criteria were based on his identification of marginal performers, i.e., those recruits who had encountered minor behavioral or disciplinary problems during basic training. Academic performance was not taken into consideration. This selection process continued for workshop sessions one thru six. The selection process for the last five workshop sessions was done by random selection from the available ATD personnel.

At the beginning of the experiment no procedure was established to select a control group without which causal relationships concerning RTC CREDO and attrition would be impossible to establish. Consequently, after the sixth workshop session the same Senior Chief Petty Officer attempted to make a retrospective selection of a control group using the same criteria and the same eligible pool of personnel. This was accomplished, and a control group was established for each of workshop sessions one thru six. Selection procedures for workshop sessions seven thru eleven for experimental and control groups were accomplished using original criteria.

Assignment of trainees to experimental and control groups was accomplished by random selection.

The size of the workshop sessions seven thru eleven was increased slightly to allow for input from a source other than the Apprentice Training Division. This alternate source of personnel was the Positive Motivational Unit (PMU). PMU personnel are recruits who are still undergoing basic training, but who have had performance or disciplinary problems of such magnitude that they require special remedial attention. The PMU program stresses physical fitness and military discipline. If a recruit does not successfully complete the PMU program he is processed for discharge. If he does complete PMU, he is then returned to basic training. If he subsequently fails recruit basic training, he is processed for discharge.

PMU administrators provided twelve personnel selected at random for each of the workshop sessions seven thru eleven. Of the twelve, six were randomly selected for the experimental group and attended the RTC CREDO workshop. The remaining six were administratively placed in the control group for that workshop session. There is some question as to the appropriateness of the selection of PMU candidates. It has been discovered that several experimental and control personnel were awaiting Recruit Evaluation Board hearings and subsequent discharge during the timeframe of the workshop. In fact, several PMU personnel in this experiment were discharged within a matter of days after the completion date of the

workshop session. If other PMU personnel in the experiment were in a similar status, then the results from the PMU group are biased.

#### B. DATA SCREENING

Data for the experiment were collected using the Defense Manpower Data Center (DMDC) fiscal year 1979 and 1980 Cohort file. The cohort file is compiled by DMDC using the monthly submission files provided by the commander, Naval Military Personnel Command (NMPC). The data used in this thesis are current thru 30 September 1980.

There are 54 total personnel considered as valid cases to the RTC CREDO experiment after screening out individual cases not appropriate for inclusion in the experiment. Selective screening eliminated the records of those personnel who:

1. Were found not physically qualified for continuation on active duty.
2. Enlisted in error.
3. Died while on active duty.
4. Were PMU personnel known to be awaiting discharge during the timeframe of the CREDO workshop session.

Table II displays the distribution of ATD/PMU experimental and control personnel for the RTC CREDO experiment.

TABLE II  
RTC CREDO PERSONNEL DISTRIBUTION

| EXPERIMENTAL        |     |     | CONTROL        |     | WORKSHOP<br>DATES |
|---------------------|-----|-----|----------------|-----|-------------------|
| SESSION             | ATD | PMU | ATD            | PMU |                   |
| 1                   | 12  |     | 11             |     | 9-12 Jul 1979     |
| 2                   | 22  |     | 18             |     | 26-29 Aug 1979    |
| 3                   | 7   |     | 5              |     | 2-5 Aug 1979      |
| 4                   | 28  |     | 29             |     | 20-23 Aug 1979    |
| 5                   | 27  |     | 29             |     | 24-27 Sep 1979    |
| 6                   | 24  |     | 24             |     | 15-18 Oct 1979    |
| 7                   | 21  | 5   | 23             | 6   | 26-29 Nov 1979    |
| 8                   | 25  | 5   | 23             | 5   | 17-20 Dec 1979    |
| 9                   | 23  | 4   | 25             | 6   | 14-17 Jan 1980    |
| 10                  | 23  | 6   | 21             | 4   | 25-28 Feb 1980    |
| 11                  | 22  | 4   | 23             | 6   | 10-13 Mar 1980    |
| TOTAL N             | 234 | 24  | 231            | 27  |                   |
| EXPERIMENTAL N: 256 |     |     | CONTROL N: 258 |     |                   |
| GRAND TOTAL N: 514  |     |     |                |     |                   |

### III. PROCEDURES AND RESULTS

#### A. PROCEDURES

The data for 514 RTC CREDO experiment personnel were examined using the Statistical Package for the Social Sciences (SPSS) computer programs. The measure of attrition selected for use in this experiment was the Separation Program Designator Code (SPD). SPD codes are assigned by the separation processing center on the DD214 discharge form. For personnel attriting as a result of death or desertion, the SPD code is assigned by the parent command. Appendix B is a listing of all SPD codes contained in the data base. It was assumed that a person who had a SPD code of a deserter was an attritee from the Navy.

The SPD codes were examined and matched to the personnel in each workshop session by experimental and control groups, and by ATD/PMU personnel. Table III displays the number of attritees for sessions seven thru eleven.

Since the length of service at the time of attrition is central to the study of first term attrition, the data were examined from a time-to-attrition perspective. The unit of time selected was a month. The month and year of separation subtracted from the month and year of the completion date of the workshop session, yielded the time to separation displayed in Table IV for the control group and in Table V for the experimental group.

TABLE III  
RTC CREDO PERSONNEL DISTRIBUTION WITH ATTRITES

| EXPERIMENTAL             |         |         | CONTROL             |         | WORKSHOP<br>DATES |
|--------------------------|---------|---------|---------------------|---------|-------------------|
| SESSION                  | ATD     | PMU     | ATD                 | PMU     |                   |
| 7                        | 21 (0)* | 5 (1)   | 23 (0)              | 6 (5)   | 26-29 Nov 1979    |
| 8                        | 25 (3)  | 5 (2)   | 23 (1)              | 5 (2)   | 17-20 Dec 1979    |
| 9                        | 23 (2)  | 4 (3)   | 25 (2)              | 6 (5)   | 14-17 Jan 1980    |
| 10                       | 23 (1)  | 6 (3)   | 21 (0)              | 4 (0)   | 25-28 Feb 1980    |
| 11                       | 22 (1)  | 4 (1)   | 23 (0)              | 6 (4)   | 10-13 Mar 1980    |
| TOTAL N                  | 114 (7) | 24 (10) | 115 (3)             | 27 (16) |                   |
| EXPERIMENTAL N: 138 (17) |         |         | CONTROL N: 131 (19) |         |                   |
| GRAND TOTAL N: 269 (36)  |         |         |                     |         |                   |

\*(N) Number of attrites from among the total shown  
in each category. Attrition is as of 30 September 1980.

Sessions 7-11 With (N) Attrites Per Session By Source

TABLE IV  
NUMBER OF ATTRITES FROM CONTROL GROUP BY COMPUTED MONTHS OF  
SERVICE AS OF 30 SEPTEMBER 1980

| Months of<br>Service<br>Completed                                                         | 0-1  | 1-2  | 2-3  | 3-4  | 4-5  | 5-6  | 6-7  | 7-8  | 8-9  | 9-10 | 10-11 | 11+  |
|-------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| CREDO<br>Session 1-6                                                                      |      |      |      |      |      |      |      |      |      |      |       |      |
| 7                                                                                         |      | 3    | 1    |      |      |      |      |      |      |      | 1*    |      |
| 8                                                                                         | 1    | 1    |      | 1    |      |      |      |      |      | *    |       |      |
| 9                                                                                         | 4    |      | 1    |      | 1    |      |      |      | *    |      |       |      |
| 10                                                                                        |      |      |      |      |      |      |      | *    |      |      |       |      |
| 11                                                                                        | 3    |      |      |      |      |      | 1*   |      |      |      |       |      |
| Total<br>Attrites<br>(19)                                                                 | 8    | 4    | 2    | 1    | 1    |      | 1    | 1    |      |      | 1     |      |
| % Remaining<br>on Active<br>Duty                                                          | 96.9 | 95.3 | 94.5 | 94.1 | 93.7 | 93.7 | 93.4 | 93.0 | 93.0 | 93.0 | 92.6  | 92.6 |
| Cumulative<br>% Attrition                                                                 | 3.1  | 4.7  | 5.5  | 5.9  | 6.3  | 6.3  | 6.6  | 7.0  | 7.0  | 7.0  | 7.4   | 7.4  |
| Total N=258<br>* Indicates the Length of Service of the Cohort as of<br>30 September 1980 |      |      |      |      |      |      |      |      |      |      |       |      |

TABLE V  
NUMBER OF ATTRITES FROM EXPERIMENTAL GROUP BY COMPUTED MONTHS  
OF SERVICE AS OF 30 SEPTEMBER 1980

| Months of Service                                                                      | 0-1  | 1-2  | 2-3  | 3-4  | 4-5  | 5-6  | 6-7  | 7-8  | 8-9  | 9-10 | 10-11 | 11+  |
|----------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| CREDO Session 1-6                                                                      |      |      |      |      |      |      |      |      |      |      |       |      |
| 7                                                                                      |      |      |      |      |      |      |      |      |      | 1    | *     |      |
| 8                                                                                      |      | 2    |      |      |      |      |      | 1    | 2    | *    |       |      |
| 9                                                                                      | 2    | 2    |      |      |      |      |      | 1    | *    |      |       |      |
| 10                                                                                     |      | 4    |      |      |      |      |      | *    |      |      |       |      |
| 11                                                                                     | 1    |      |      |      |      | 1    | *    |      |      |      |       |      |
| Total Attrites (17)                                                                    | 3    | 8    |      |      |      | 1    |      | 2    | 2    | 1    |       |      |
| % Remaining on Active Duty                                                             | 98.8 | 95.7 | 95.7 | 95.7 | 95.7 | 95.3 | 95.3 | 94.5 | 93.7 | 93.3 | 93.3  | 93.3 |
| Cumulative % Attrition                                                                 | 1.2  | 4.3  | 4.3  | 4.3  | 4.3  | 4.7  | 4.7  | 5.5  | 6.0  | 6.4  | 6.4   | 6.4  |
| Total N=256<br>* Indicates the Length of Service of the Cohort as of 30 September 1980 |      |      |      |      |      |      |      |      |      |      |       |      |

The time to separation variable computed in this manner is not the actual length of service at the time of attrition. The computational method selected is considered the most accurate and least biased. Actual computation of length of service is difficult to do using the DMDC Cohort file. There is considerable conflicting information on file for the variables: total active federal military service, active duty base date, and pay entry base dates. While all personnel in the experiment were supposed to be non-prior service males, the cohort file showed 22 cases of prior service, none of which was a military service. Consequently, it is estimated that the actual time to separation is approximately two months greater than the actual time to separation used in this study, since all ATD personnel had completed eight weeks of basic training. Using the computed time to separation will not bias the results.

The workshop sessions were examined individually by computed time to separation, and by experimental and control groups. In this manner, each workshop session can be viewed as a separate cohort, and comparisons can be made between experimental and control groups. Figures I thru V display graphically the time-to-separation profiles of each workshop session cohort. From the individual cohorts, composites of the RTC CREDO experimental and control populations were constructed using the time to separation model. Figure VI displays the composite attrition profile for workshop sessions one thru eleven.

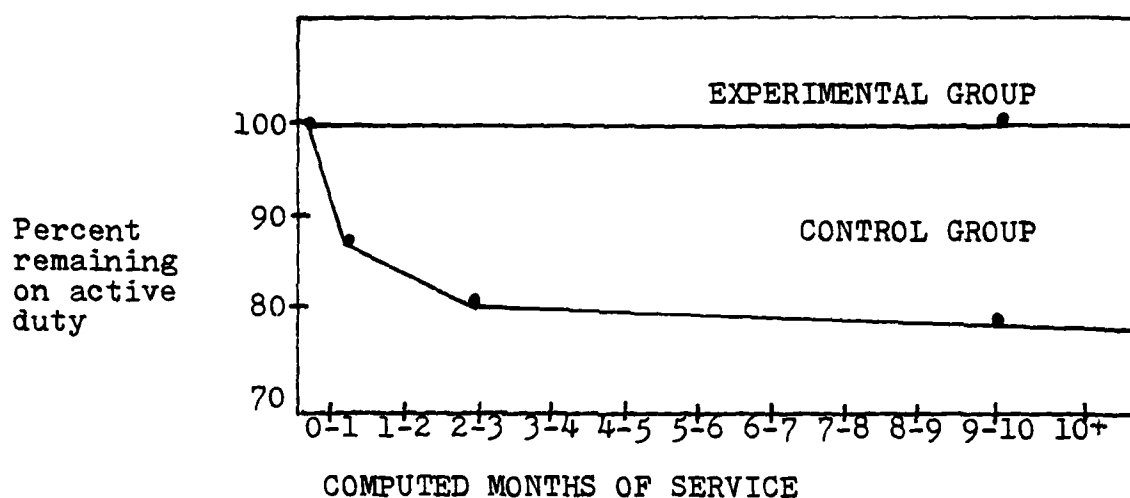


FIGURE I  
PERCENT OF SESSION 7 REMAINING ON ACTIVE DUTY BY MONTHS OF SERVICE

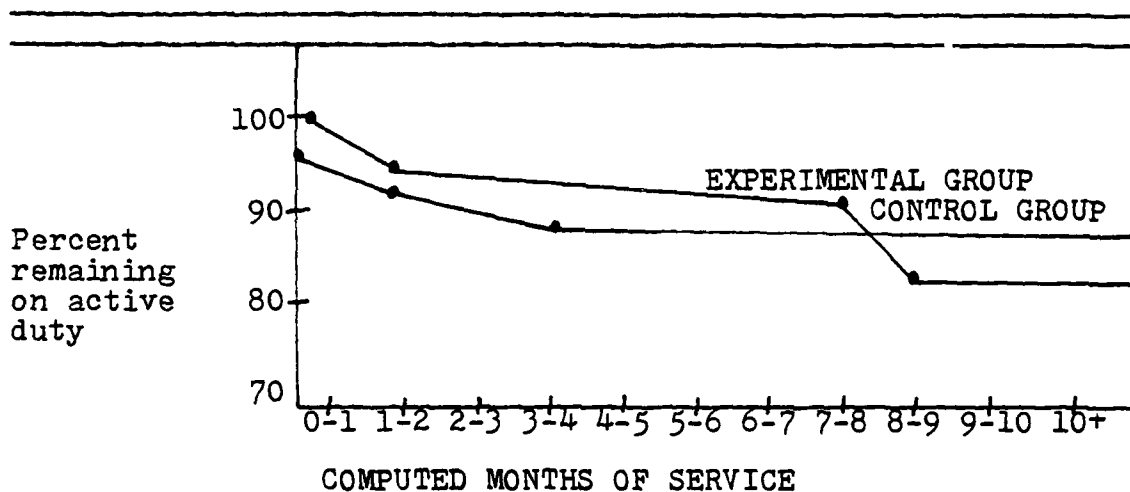


FIGURE II  
PERCENT OF SESSION 8 REMAINING ON ACTIVE DUTY BY MONTHS OF SERVICE

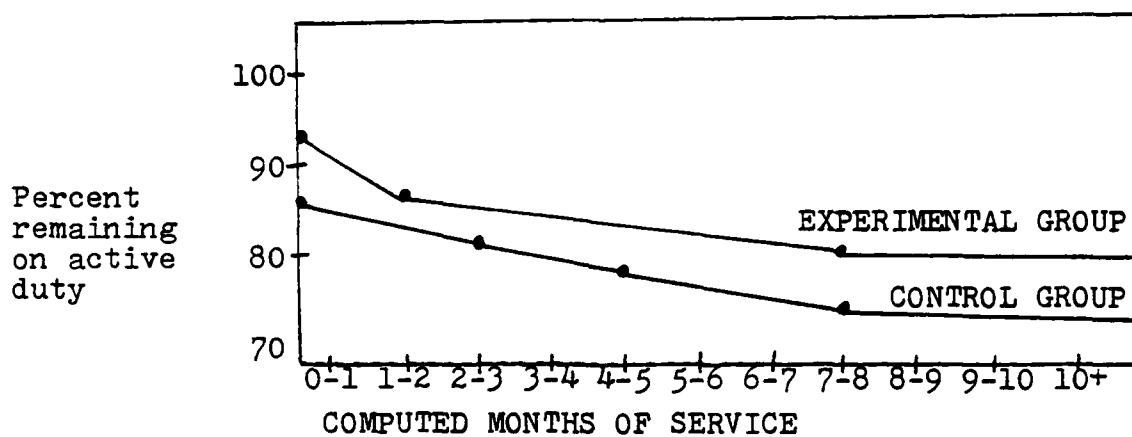


FIGURE III  
PERCENT OF SESSION 9 REMAINING ON ACTIVE DUTY BY MONTHS OF SERVICE

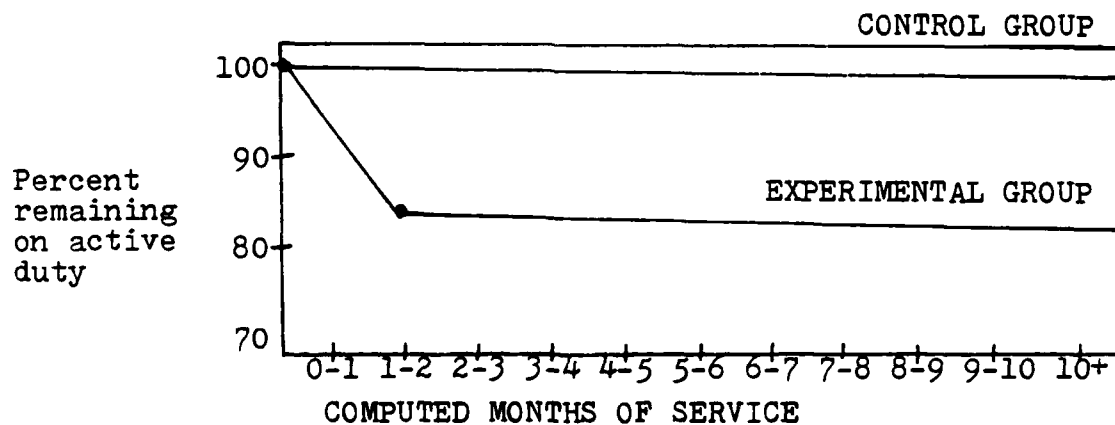


FIGURE IV  
PERCENT OF SESSION 10 REMAINING ON ACTIVE DUTY BY MONTHS OF SERVICE

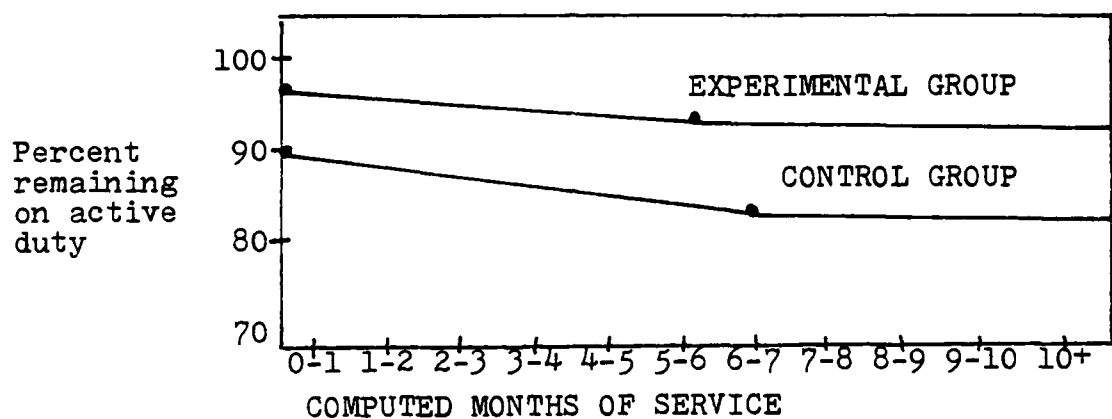


FIGURE V  
PERCENT OF SESSION 11 REMAINING ON ACTIVE DUTY BY MONTHS OF SERVICE

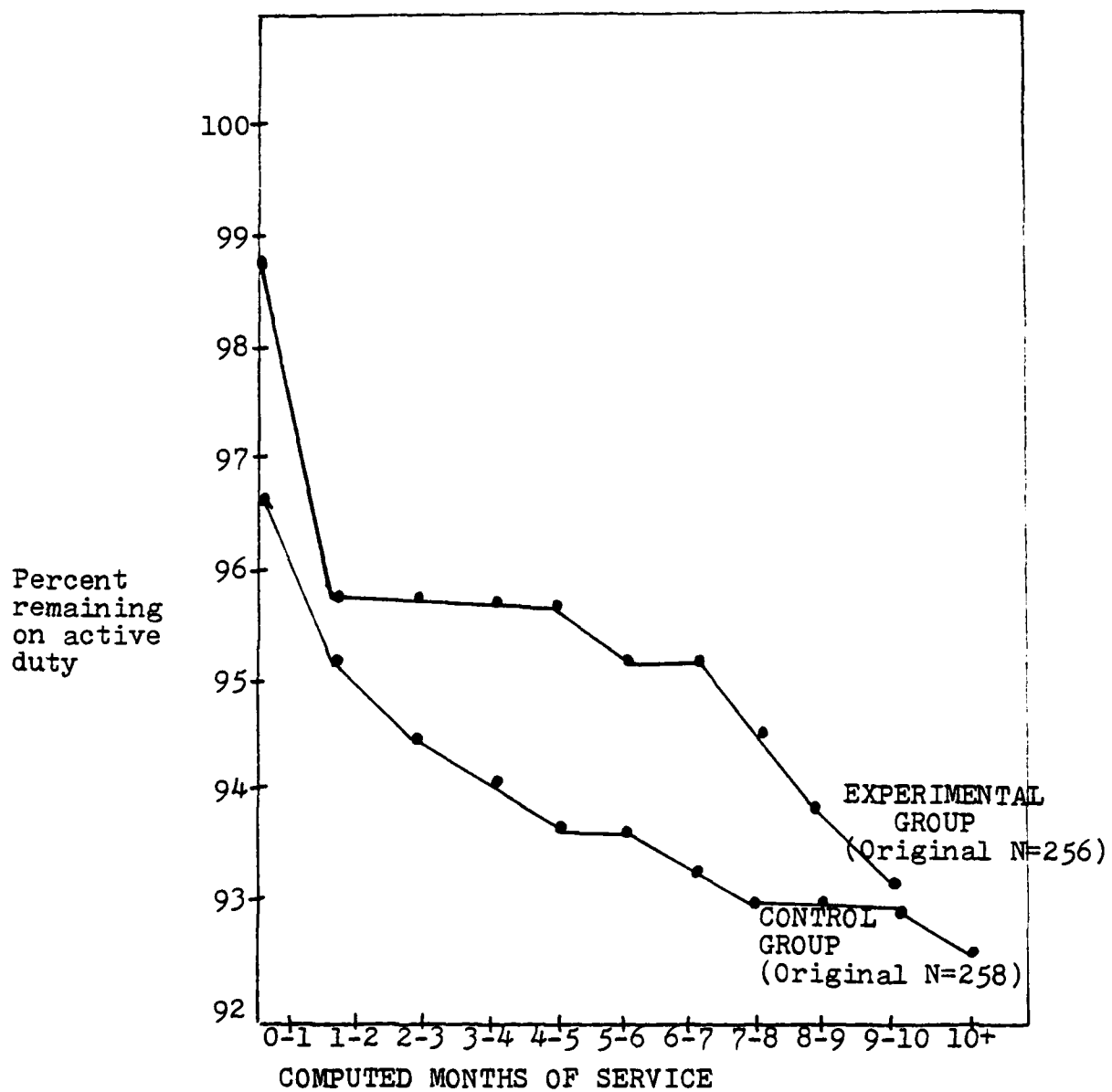


FIGURE VI  
PERCENT OF TOTAL SAMPLE REMAINING ON ACTIVE DUTY BY MONTHS  
OF SERVICE

## B. RESULTS

One of the most significant results of this study is that from workshop sessions one thru six, and from both the experimental and control groups, there had been no attrition as of 30 September 1980. Specifically, of 236 personnel selected by a Senior Chief Petty Officer as having minor behavioral and disciplinary problems, none have attrited in up to fourteen months of active duty. The Navy-wide attrition statistics displayed in Table I would strongly suggest that some attrition should be expected from a sample size of 236. All possible procedural and data collection errors have been examined in an attempt to explain this phenomenon, but none was found. The social security numbers of 230 out of the 236 personnel from sessions one thru six were matched with valid records on the February, 1981 Enlisted Master Record file, (six records were not matched due to data collection errors). From this file the Unit Identification Code (UIC) of each service member was matched with valid service units. The personnel from sessions one thru six currently assigned to a cross-section of ship, aviation, and shore duty billets. Four of the ships were contacted by telephone, and it was verified that four participants from this experiment are still on active duty.

For workshop sessions seven thru eleven, the cohort attrition over time is displayed graphically in Figures I thru V. There were a total of 38 attrites. The results show that in four out of five cohorts the experimental group had less attrition than did the control group. In workshop session

ten there were no attrites from the control group and four attrites from the experimental group.

The composite profile displayed in Figure VI shows the experimental group to have less attrition than the control group over time. The mean percent difference in attrition is 1.22 percent. That is, the experimental group had 1.22 percent less attrition than did the control group at the end of a typical time-in-service interval.

On the suspicion that the data might be biased due to the peculiar absence of attrition of personnel from workshop sessions one through six, a further division of the cohort was made by examining only workshop sessions seven thru eleven. The data presented in Table VI show the percent attrition and cumulative percent attrition by length of service. A comparison of the data in Table VI with the data in Table I, the overall Navy attrition rates for ISC 6-8 for 1980, reveals that this smaller sample consisting of sessions seven thru eleven has a higher first-term attrition than the overall Navy rates. In order to determine if there was any statistically significant difference in attrition between the experimental and control groups from workshop sessions seven thru eleven a Kilmogorov-Smirnov two-sample test for statistical significance was made [3]. The results contained in Appendix D showed no statistically significant difference in attrition between the experimental and control groups. Further, the results show that from all personnel in workshop sessions one thru eleven those personnel who attended RTC CREDO had on the

TABLE VI  
PERCENT ATTRITION BY MONTH AND CUMULATIVE PERCENT ATTRITION  
BY GROUPS OF MONTHS OF SERVICE FOR SESSIONS 7-11

CONTROL GROUP

| Months of Service                                                               | 0   | 1   | 2   | 3  | 4  | 5 | 6  | 7  | 8 | 9 | 10 |
|---------------------------------------------------------------------------------|-----|-----|-----|----|----|---|----|----|---|---|----|
| % Attrition From<br>Among Those Remain-<br>ing At The Beginning<br>Of The Month | 5.6 | 2.9 | 1.5 | .7 | .7 | 0 | .8 | .8 | 0 | 0 | .8 |

Cumulative %: 0-3 MONTHS = 10.7%

0-6 MONTHS = 12.2%

0-12 MONTHS = 13.8%

N = 138

EXPERIMENTAL GROUP

| Months of Service                                                               | 0   | 1   | 2 | 3 | 4 | 5  | 6 | 7  | 8  | 9  | 10 |
|---------------------------------------------------------------------------------|-----|-----|---|---|---|----|---|----|----|----|----|
| % Attrition From<br>Among Those Remain-<br>ing At The Beginning<br>Of The Month | 2.1 | 5.8 | 0 | 0 | 0 | .8 | 0 | .8 | .8 | .8 | 0  |

Cumulative %: 0-3 MONTHS = 7.9%

0-6 MONTHS = 8.7%

0-12 MONTHS = 11.1%

N = 142

Cumulative Control % Minus Cumulative Experimental % Attrition:

0-3 MONTHS = 2.8%\*

0-6 MONTHS = 3.5%\*

0-12 MONTHS = 2.7%\*

\* NOT SIGNIFICANT AT  $\leq .05$  (SEE APPENDIX D)

average a 1.22 percent lower attrition rate than did the control group who had no RTC CREDO experience.

In a previous study of RTC CREDO, Hawkins (1979), found that there was no significant difference between the experimental and control groups on the major variables (education, mental ability, age, marital status, and race) which Lockman (1977) demonstrated were the primary predictors of attrition (6) (2). Appendix C shows the breakdown of each workshop session by experimental and control groups for each of the major predictor variables. A multiple regression was performed in order to determine if there were any variables which would explain the attrition from workshop sessions seven thru eleven. The results of the multiple regression are shown in Table VII. These results show that the only statistically significant variable which impacted on attrition was level of education, (HSG), which was significant at the .01 level. Other things being equal, high school graduates had an attrition rate 16 percentage points lower than that of non-high school graduates. There was no statistically significant difference between the experimental and control groups. If it is assumed that all other variables impact upon the experimental and control groups equivalently, then the success of RTC CREDO in countering first-term attrition is confirmed by the 1.22 percent lower attrition rates for personnel who attended the three day workshop session.

TABLE VII  
ATTRITION REGRESSION RESULTS FOR TRADITIONAL VARIABLES FOR  
WORKSHOP SESSIONS 7-11

| VARIABLE                              | ATTRITION REGRESSION<br>COEFFICIENT | F-STATISTIC | R SQUARED |
|---------------------------------------|-------------------------------------|-------------|-----------|
| HSG                                   | -.1577***                           | 6.231       | .0219     |
| D1AGE                                 | -.1427*                             | 2.001       | .0289     |
| D2AGE                                 | -.8485*                             | 1.481       | .0341     |
| D3AGE                                 | -.7670*                             | 1.817       | .0404     |
| BLACK                                 | .3704*                              | .6260       | .0426     |
| CREDO                                 | .1137*                              | .0770       | .0420     |
| CONSTANT .2910                        |                                     |             |           |
| N = 280                               |                                     |             |           |
| *** Significant at .01 level          |                                     |             |           |
| * Not Significant at $\leq$ .05 level |                                     |             |           |

| <u>VARIABLE</u> | <u>DEFINITION</u>                                        |
|-----------------|----------------------------------------------------------|
| ATTRITE         | 0 - Non Attrite<br>1 - Attrite                           |
| HSG             | 0 - Non High School Graduate<br>1 - High School Graduate |
| D1AGE           | 0 - Dummy for Age Other than 17<br>1 - Dummy for Age 17  |
| D2AGE           | 0 - Dummy for Age Other than 18<br>1 - Dummy for Age 18  |
| D3AGE           | 0 - Dummy for Age Other than 19<br>1 - Dummy for Age 19  |
| BLACK           | 0 - Race is White<br>1 - Race is Black                   |

#### IV. COST BENEFIT ANALYSIS

In order to assess properly the economic utility of RTC CREDO, the cost of the additional training must be compared with the savings which result from reduced attrition. The cost of the three day RTC CREDO session is contained in Appendix E and is estimated to be \$73.00 per recruit. Cost of replacement is much more difficult to compute, since replacement costs increase over length of service, and differ by rating due to specialized training. But, considering the mean length of service for the RTC CREDO experiment as seven months, and the mean pay grade to be E-2, and without considering recruitment costs, the cost of replacement of one recruit is \$3,325 (See Appendix E). With an overall reduced attrition rate of 1.22 percent from sessions one thru eleven, it can be expected to take 82 CREDO graduates to realize one "non-attrite" due to the CREDO program ( $82 \times .0122 = 1$ ). Consequently, the cost of 82 CREDO graduates must be compared with the replacement cost.

The 82 CREDO graduates cost \$5,986.00 ( $82 \times \$73.00$ ), and replacement cost is \$3,325. This results in a net loss of \$2,661.00 for operating the RTC CREDO program and realizing one "non-attrite."

## V. CONCLUSIONS AND RECOMMENDATIONS

The RTC CREDO session was only three days in length, and there was no requirement or provision for follow-on training. It seems unlikely that attrition differences between experimental and control groups in the future will expand due to an increasingly distant RTC CREDO experience. However, continued tracking of the cohort will reveal whether or not the attrition difference grows as the cohorts age to the point where the RTC CREDO program appears cost-effective.

## APPENDIX A

### TYPICAL RTC CREDO WORKSHOP FORMAT

#### MONDAY

- 2000 Gather participants  
Establish: 1. confidentiality  
2. goal to establish a supportive community  
3. not psychotherapy, not encounter free to participate on whatever level one chooses  
4. committed to complete process - no leaving before done  
5. expectations:  
a. to deepen personal and spiritual growth  
b. to enhance respect for each person and ones self  
c. to encourage honest relationships  
d. to allow processes to occur naturally, allowing the Spirit to work
- 2100 Arrive at workshop site; housekeeping  
2115 a. choose someone to know better  
2130 b. choose another not normally friendly with  
2145 c. second pair recruit a third  
2215 Large group listen to MUSIC: INTERNAL PAIN  
2300 a. maintain silence until breakfast  
b. draw name of fellow participant  
1. tasked to look after that person unobtrusively, anonymously - at least until end of weekend.

#### TUESDAY

- 0730 Breakfast  
0830 Return to triad, reflect on events to date  
0930 Large group report out:  
each participant introduces self, others, in triad, reconstructs how got together, evaluates how group progressing.
- 1200 Light lunch  
1300 Large group MUSIC: SOCIAL PAIN  
1345 Small group (6-8) assigned by staff (optional)  
1600 Recess when they so choose  
1800 Supper - simple & hearty  
1900 Large group MUSIC: INTERNAL PAIN  
1945 Silent period  
2000 Large group - interaction period  
2200 Permit to go to bed or stay up and talk into the night

### WEDNESDAY

0730 Breakfast  
0830 Large group MUSIC: CONTEMPLATION OF LIFE GOALS  
0915 Silent walk in nature  
1015 Large group - read out, state of participants  
1200 Light lunch  
1300 Large group MUSIC: REFLECTIVE OF CHANGE  
1345 Merge two small groups; large group continues  
1530 Recess when so choose; free time  
1800 Simple supper  
1900 Large group MUSIC: SUPPORT  
1930 Silent period  
1945 Large group - interaction period  
encourage sharing, as is last night  
2200 Permit to go to bed or stay up

### THURSDAY

0700 Breakfast  
0730 Large group MUSIC: SUPPORT II  
0800 Large group - interaction period  
0900 Large group MUSIC: HOPE  
1000 Large group - reflection period  
    a. chaplain input: summary of what has transpired  
        in context of essential ingredient of love/  
        compassion  
    b. relate to biblical parallels: Abraham/Isaac,  
        Jacob/Esau, Peter, Paul, Magdelain  
    c. specifically relate to life of Jesus  
        1. pain, rejection, triumph, constancy of  
           love  
        2. presence thru Holy Spirit  
        3. gift of Himself in Eucharist  
            a. if Roman Catholic & Protestant  
                clergy present: simultaneous cele-  
                bration  
            b. if Protestant or Roman Catholic only -  
                spiritual communion for unrepresented  
                group  
            c. unchurched, or reluctant options:  
                1. be together with others but  
                   not receive  
                2. break for 30 minutes and do  
                   something together  
1100 Rejoin large group  
1130 Festive simple lunch; clean up  
1300 Return to RTC

### FOLLOW UP

Recruits: 1 session of 1 hour the next week Thursday  
STAFF:

### BASIC GROUND RULES

1. Confidentiality stressed.
2. Dignity of individual respected; particularly the religious tradition (or lack of) of participants.
3. Privacy of individual respected:
  - a. personal information only divulged by individual as he sees fit
4. Participant encouraged to participate in each session, however, involuntary confrontation is strongly guarded against as are any attempts at psychotherapy, encounter techniques, or religious coercion.
5. Reading material, watches, radios, alcohol and other diversionary material not permitted.

# APPENDIX B

## DISTRIBUTION OF ATTRITES AMONG SEPARATION PROGRAM DESIGNATOR (SPD) CODES

| <u>SPD CODE</u> | <u>N</u> | <u>DESCRIPTION</u>                                    |
|-----------------|----------|-------------------------------------------------------|
| HKC             | 2        | Misconduct - homosexual                               |
| HKG             | 1        | Early separation for school                           |
| JHJ             | 24       | Burden to command due to sub-<br>standard performance |
| JMJ             | 1        | Unsuitability - apathy, defective<br>attitudes        |
| KDM             | 1        | Early separation for school                           |
| KFC             | 1        | Enlisted in error                                     |
| KFN             | 1        | Physical disability                                   |
| 895             | 1        | Death, non-combat                                     |
| 951             | 6        | Deserter                                              |
| TOTAL           | 38       |                                                       |

SOURCE: NMPCINST 1900.1 and DMDC Cohort file.

# APPENDIX C

TABLE C-1  
MEANS AND DISTRIBUTIONS FOR EXPERIMENTAL AND CONTROL GROUPS  
BY AGGREGATE SESSIONS 1-6 AND 7-11

|                                            | VARIABLE            | EXPERIMENTAL<br>N=120 | CONTROL<br>N=116 | X <sup>2</sup> PROBABILITY |
|--------------------------------------------|---------------------|-----------------------|------------------|----------------------------|
| SESSION<br>1-6                             | HYEC                | 11.61                 | 11.64            | .886                       |
|                                            | AFCT                | 44.21                 | 46.62            | .102                       |
|                                            | AGEE                | 18.9                  | 18.6             | .360                       |
|                                            | SINGLE/<br>MARRIED  | 114/6                 | 111/5            | .783                       |
|                                            | WHITE/<br>NON-WHITE | 82/38                 | 82/33            | .249                       |
|                                            | VARIABLE            | EXPERIMENTAL<br>N=138 | CONTROL<br>N=142 | X <sup>2</sup> PROBABILITY |
| SESSION<br>7-11                            | HYEC                | 11.38                 | 11.23            | .113                       |
|                                            | AFCT                | 48.21                 | 51.4             | .366                       |
|                                            | AGEE                | 18.7                  | 18.8             | .736                       |
|                                            | SINGLE/<br>MARRIED  | 134/4                 | 140/2            | .402                       |
|                                            | WHITE/<br>NON-WHITE | 102/36                | 95/47            | .138                       |
| HYEC - HIGHEST YEAR OF EDUCATION COMPLETED |                     |                       |                  |                            |
| AFQT - AFQT PERCENTILE                     |                     |                       |                  |                            |
| AGEE - AGE AT SERVICE ENTRY                |                     |                       |                  |                            |

## APPENDIX D

### COMPUTATION OF STATISTICAL SIGNIFICANCE OF CUMULATIVE PERCENTAGE DIFFERENCE IN ATTRITION BETWEEN EXPERIMENTAL AND CONTROL GROUPS

The Kolmogorov-Smirnov (K-S) two sample test for the difference between cumulative percentages of the experimental and control groups was made to ascertain if there was any statistically significant difference in attrition between groups. The following K-S formula was used:

$$C \sqrt{\frac{N_1 + N_2}{N_1 N_2}} = D$$

WHERE: C = Constant multiplier which varies depending on the level of significance

$N_1$  = Experimental group size = 138

$N_2$  = Control group size = 142

D = Critical Percentage Difference

If the observed cumulative percentage difference in attrition between experimental and control groups is greater than or equal to the "D" value then there is a statistically significant difference at that level of significance.

Table D-1 depicts the results of the K-S test. Since the "D" value is greater than the observed difference in attrition it is concluded that there is no statistically significant difference in attrition between the experimental and control groups.

TABLE D-1  
KOLMOGOROV-SMIRNOV TWO SAMPLE TEST FOR STATISTICAL SIGNIFI-  
CANCE BETWEEN EXPERIMENTAL AND CONTROL GROUPS

| LENGTH OF<br>SERVICE IN<br>MONTHS | OBSERVED %<br>DIFFERENCE<br>IN ATTRITION | D VALUE AT LEVEL OF SIGNIFICANCE |        |       |       |
|-----------------------------------|------------------------------------------|----------------------------------|--------|-------|-------|
|                                   |                                          | D(.01)                           | D(.05) | D(.1) | D(.2) |
| 0-3                               | 2.8                                      | 19.3                             | 16.1   | 14.5  | 12.8  |
| 0-6                               | 3.5                                      | 19.3                             | 16.1   | 14.5  | 12.8  |
| 0-12                              | 2.7                                      | 19.3                             | 16.1   | 14.5  | 12.8  |

## APPENDIX E

CREDO cost is determined by the following formula:

$$\frac{\text{STAFF SALARIES PER YEAR}}{\text{TOTAL CAPACITY PER YEAR}} + (3 \times \text{DAILY E-2 PAY RATE}) = \text{COST PER STUDENT}$$

$$\text{STAFF SALARIES PER YEAR} = \$64,000.$$

$$\text{TOTAL CAPACITY PER YEAR} = 2500 \text{ Students} = \begin{matrix} (50 \text{ Students} \\ \times 50 \text{ Sessions}) \end{matrix}$$

$$\text{DAILY E-2} = \$15.80$$

$$\frac{\$64,000}{2500} + \$47.40 = \$73.00 \text{ COST PER STUDENT}$$

Mean Cost of replacement is determined as follows:

$$\text{E-2 PAY PER MONTH} = \$475.00 \times 7 \text{ MONTHS} = \$3,325.00$$

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